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LEADING ARTICLES

NORMAL SALT SOLUTION IN SEPTIC CONDITIONS OF THE PERITONEUM—REPORT OF CASES.*

J. M. TAYLOR, M. D.

FT. SMITH, ARK.

IN presenting this paper I lay no claim to originality, as the antiseptic property of sodium chloride is well known, "The American Farmer," having long since proven its virtue in the preservation of those "country cured hams" we love so well, I only desire to add my mite to the accumulated literature on the subject.

That normal salt solution has a decided, I might say, almost specific antiseptic effect on the peritoneum, there can be no doubt; however I am not certain as to the manner in which the effect is produced. It does not seem possible that 0.6 per cent of sodium chloride would have sufficient antiseptic power to kill the pathogenic bacteria. It is probable that the peritoneum itself is stimulated in such a manner that it is capable of overcoming a greater amount of poisonous material. Keen cites Clark as saying that flushing the peritoneum with saline solution causes a marked increase in leucocytosis, also as recommending its use in infective conditions of the peritoneum.

Whatever the action may be, the efficacy of flushing the peritoneal cavity in general infective conditions is abundantly proven by the following cases in my own practice:

CASE I.—Wm. H., a young man of 22 years, while engaged in making mattresses, on March 23, 1908, just after eating a hearty dinner, accidentally punctured the abdominal wall and stomach with a mattress needle, a piece of steel eighteen inches long, about one-eighth inch in diameter and pointed at both ends. I operated on him at 11 o'clock p.m., ten hours after the accident, and found a rent in the anterior wall of the stomach about an inch and a quarter in length. The abdominal cavity was full of water, of which he drank a great deal during the afternoon, and the undigested food from the mid-day meal; the contents of the stomach having been generally disseminated there was nothing to do but to try in some manner to remove it. I conceived the idea of thoroughly washing the cavity with sterile salt solution. I used perhaps five gallons, a nurse—pouring it into the abdomen from a pitcher, while with my hand introduced into the abdomen I separated the folds of the intestines. When the solution returned perfectly clear the abdomen was closed without drainage, and the cavity left full of the solution. Although at the time the operation was begun the temperature was 104, at 8 o'clock the following morning it was normal and remained so until a slight rise was caused by an abscess which formed in the adipose tissue of the abdominal wall. With the exception of this abscess, which was readily controlled, the recovery was uneventful, the patient appearing to be in as good health as before the accident.

CASE II.—On the morning of May 31st, just after midnight, L. D. Mc., a man of 33 years of age, was shot with a 38 caliber Smith & Wesson pistol; two bullets entering the right forearm, one entering the right hip, one entered four inches below and two inches internal to the left nipple and was found beneath the skin in the mid-axillary line of the right side on a level with the eighth rib, a fifth bullet entered the back about an inch to the left of the third lumbar vertebra and passed upward, forward and inward lodging beneath the tip of the sternum after having passed through the gastrophrenic ligament, in which it tore a hole the size of a silver dollar, at the same time tearing the stomach wall to the extent of about

*Read before the Medical Association of the Southwest at Kansas City, October 20, 1908.

two inches. The operation was begun as soon as possible after the shooting. The tear in the stomach was closed with a double row of silk sutures, a bleeding artery tied, and the edges of the ligament brought together with catgut. Although there was no evidence of undigested food in the abdomen, the stomach being empty at the time of the shooting, my experience with Case I, led me to use the salt solution in this case; after having carefully inspected the other abdominal viscera the abdomen was closed without drainage, leaving the cavity full of the salt solution, as in the previous case. The temperature was normal the following morning and remained so until an abscess developed in the pleura and liver; when a portion of the eighth rib was resected, and a quantity of pus and bile evacuated. The usual drainage was employed and the patient made a good, though slow recovery, and is at present time in fairly good health.

CASE III.—Miss G., a young woman 19 years of age, came to St. Edward's Infirmary on June 15, 1908, suffering with general peritonitis. I did a laparotomy that evening and found the cavity full of serum, the omentum and mesentery much inflamed, and quite extensive recent adhesions. The appendix though slightly inflamed was less than an inch long and looked as though it might, at some previous time, have sloughed away, otherwise I could discover no cause for the peritonitis. The remnant of the appendix was removed and the cavity thoroughly flushed with normal salt solution. The abdomen was closed without drainage and the cavity left full of the solution. The following morning the temperature was normal and remained so until the patient was dismissed on June 29.

CASE IV.—John S., a man 22 years of age. I saw the patient first, the afternoon of June 29, 1908. He gave the history of a case of appendicitis beginning forty-eight hours prior to my examination. My diagnosis was ruptured appendiceal abscess. He was removed to St. Edwards' Infirmary and the abdomen opened without unnecessary delay. The incision was made over McBurney's point, a small opening being made through the peritoneum, through which pus flowed freely. I introduced my finger through the opening and carefully sought for an abscess wall, finding none the opening was enlarged and the abdominal cavity found to be literally full of pus. A large gangrenous appendix was removed, and with my hand introduced through the incision, the intestines and omentum were actually rinsed with the salt solution, as a washer-woman rinses her clothes. In this case I made the mistake of using drainage, I say mistake, as the succeeding events proved it to be. The temperature was normal the morning following the operation, and the patient did nicely until the third day when he showed unmistakable evidence of obstruction, which I believe was caused by the intestines adhering around the drainage tube. The tube was removed and I found that there was absolutely no communication between the general cavity and the opening from which the tube was removed, consequently the tube was not draining the peritoneal cavity and had pus formed at any point remote from the tube, it could not possibly have reached the drainage; therefore while it may be advisable to use drainage in local infections of the peritoneum, such as walled off abscesses I must condemn the use of drainage in cases where the infection is general. On the fourth day, after the patient had vomited a great quantity of fecal matter, the obstruction gave way, and the patient went on to recovery without further trouble.

In none of the foregoing cases was the post-operative shock of any consequence. In fact in cases I and II the heart, which was rapid and weak during the latter part of the operations, picked up immediately when the salt solution was introduced into the abdomen.

DISCUSSION.

DR. GEORGE M. GRAY, Kansas City, Kansas: —I want to congratulate Dr. Taylor upon the results he obtained by the treatment related. The treatment could not be much better. However, I do not think the evidence before us on this subject with regard to the treatment of general septic peritonitis will bear out the doctor's conclusion. In the first place, I do not think we should expect very much in the way of antiseptic powder in salt solution. Three-quarters of one per cent, salt solution will not give you a very active anti-septic. Of course, there is one point in connection with the cases the doctor has related that has probably helped him out in the results he has obtained; that is, in one case there was a gunshot injury; in another there was a perforating wound produced by a needle, and the other two cases would more properly come under the head of general peritonitis, in which we in the past have obtained uniformly bad results, where we have treated them by flushing or wiping the intestines. These cases, as I have observed them, are generally suffering from more or less shock and the manipulation of the intestines, flushing, wiping, only add to the shock which proves fatal. Owing to the bad results obtained by this method of treatment, a short time ago Dr. Ochsner, of Chicago, advocated no operation in these cases, saying that he obtained better results if he simply depended on the position of his patients, putting them in the Fowler position, or upon the right side, and waiting until nature walled off the abscess which he could open later. He got better results by so doing than by flushing the abdomen with salt solution. Then came Dr. Murphy with his method, which has probably given the best results of any plan known to us, namely,

rapidly opening the abdomen, draining, using no flushing whatever, no wiping of the intestines, removing the appendix in case where this organ has been at fault, or the cause of the appendicitis, or in perforation of the stomach, or intestine, closing the wound, and not flushing at all, simply relying on drainage, with position, and salt enemas, according to the Murphy method, by continuous flow of the normal salt solution into the bowel. It seems to me, with the statistics that Dr. Murphy, of Chicago, furnishes upon this subject, we will have to submit that the results are better than any form of treatment we had before. Of course, the secret of it is to do what you are going to do quickly. If the appendix has to be moved, remove it quickly, drain, put the patient in the Fowler position, interdict food by the stomach, and use for a number of hours following the operation salt solution in the bowel. He perfers giving it by continuous flow withfountain syringe at a low point.

DR. WALTER B. DORSETT, St. Louis, Mo.:—I was very much interested in the paper of Dr. Taylor, but from the title I judge it to be the use of normal salt solution in a general way, and not normal salt solution poured into the abdominal cavity, so that I was prepared to discuss the paper from the other standpoint. I am very sorry to hear the doctor speak so disparagingly about drainage, because I have suffered the consequences of having closed up some abdomens when I was in doubt as to whether to drain or not, and I have had some cases that I have thought were desperate, with possibly no chance of saving their lives, yet when I have put in not only one drain, but multiple drains, I have been rewarded by seeing those patients get well. With reference to the question of hydrotherapy, some four years ago, as soon as I had a case of septic peritonitis in the hospital, the patient was given large quantities of water; in other words, by starting the patient with large quantities of water you begin the dilution of the toxins from that time, and that supplemented with normal saline solution by the rectum, as advocated by Murphy, is rather an excellent adjunct to the administration of water internally before operation. I found that my patients got along better after having begun to give them water for two or three days. I would give it to them as soon as I got hold of them. I have given them water previous to the operation during the night, and on the morning of the operation, beginning the dilution of the toxins at that moment, and I find that my patients have stood the operation better. They did not suffer from shock; they did not suffer with extreme thirst that patients usually do after operation, and the pulse is better, and the temperature is lower, on an average. As to the application of normal salt solution by the rectum, I now use it as a routine measure practically. I have four patients in bed on whom I did hysterectomy. These patients have tubes in their rectums, and by means of a continuous flow of normal saline solution, you keep up the process until the kidneys and the skin take part, and the patient is always in a moist condition. There is less vomiting, and as I have previously said, my patients seem to do better. As to drainage, I want to relate one case. A boy ten years of age, was brought into the Deaconess' Hospital with a temperature of 105 degrees; the abdomen was distended like a drum, and the only thing that pointed towards appendiceal trouble was, according to the history, that the patient was taken with a severe pain in the right side five hours before he was brought into the hospital. I opened the abdomen and the appendix was found lying loose not in the abscess cavity, but in the abdominal cavity, floating around among prune-juice color material. It hads loughed off from the head of the cecum, and the patient seemed as though he was going to die before I could get him off the table. I put a drain over the appendix at McBurney's point, another one in the loin, put one in the pelvis, and another one on the other side, and that patient got well with that treatment, together with the use of normal salt solution by the rectum. While I do not wish to be considered as criticizing the odctor's paper as a whole, I do think we should let the matter of drainage and its importance in abdominal cases pass without some remark.

DR. E. B. EMORY, Winfield, Kansas:—I spent last November at Rochester, Minnesota, in seeing the surgical work of the Mayo Brothers, and if there is any one thing they emphasized more than anything else, it was to keep out all fluids from the abdominal cavity in a general septic condition. They said fluids furnished new nuclei from which poison would be generated, and since that time I have adopted the plan recommended by them and have obtained better results by establishing free drainage at every point that is possible, keeping out fluids from the abdominal cavity; using salt solution drop by drop in the rectum, and establishing free drainage you give your patients the chance for recovery possible.

DR. HORACE REED, Oklahoma City:—I wish to touch on one phase of this subject only, after congratulating the essayist on the excellent results he has obtained. Any surgeon who goes into the abdominal cavity and generally handles the small intestines with impunity will almost always get uniformly bad post-operative results That has not only been my experience, but the experience of a great many others with whom I have talked. Since the Mayos have been mentioned here this afternoon as authorities, in a great many things, I wish to say that I heard Dr. William J. Mayo make just such a statement as this, that formerly we had paresis following operations in the abdomen from too much handling of the intestines; that we could not account for it in any other way. A great many of us get the idea or did when we were medica students that after we graduated we could not go into the abdomen and strip the bowel. We often heard that, but in practice it is hardly ever carried out. Occasionally, of course, we know that cases of that kind get well. We have heard of people having been gored by bulls and their bowels washed with drainage water, and recover. But those are exceptions to the rule. One swallow does not make a summer, and anyone who handles the intestines with impunity will get into trouble and wonder why he has so much post-operative vomiting on the part of his patients, and he is likely to blame the anesthesia for it. In our experience we have vomiting in less than ten per cent. of our abdominal cases, using ether, preceding which we give one-quarter ot a grain of morphine with atropine. Of course, this may be foreign to the subject under discussion, but that one point of handling the intestines generally, without knowing what the after-affects will be, is bad surgery, but nevertheless we cannot help congratulating the author of this paper for the excellent showing he has made in treating these cases by method he has described.

DR. R. M. SCHAUFFLER, Kansas City, Mo.:—The cases under discussion have been treated by various methods, and I have seen the toilet of the peritoneum worked to a frazzle. In case of septic peritonitis the abdominal cavity has not only been

flushed, but washed with all manner of things—in fact, all kinds of stunts have been tried; the abdominal cavity filled with salt solution. etc., and yet the results from these various methods were uniformly bad. More recently I have obtained better results individually in those case where the patients were so far gone that I did not do very much, that is, simply remove the appendix, establish drainage, and if necessary, make an incision on the other side, and finding pus establish drainage there, giving at the same time normal salt solution by the rectum.

DR. R. V. SMITH, Guthrie, Oklahoma:—It seems to me, this discussion has wandered rather widely srom the subject. I wish to congratulate the essayist on his method of treatment and on the results he has obtained, because the method he has described is contrary to the best teaching of today or contrary to the practice of men who are getting the best results. I desire to call attention to one thing, and it is this: It is not pus per se in the abdomen that kills; it is pent-up pus or pus under tension that does so. It is very essential therefore to relieve this pent-up pus by drainage, following it up with normal saline solution.

DR. BACON SAUNDERS, Fort Worth, Texas: —I am exceedingly interested in this subject, for those of us who have been doing abdominal surgery for many years have been over and over and under and under. We have been on the top side sometimes, and on the bottom side a great many times. We have been like the old Baptist preacher who was sometimes up and sometimes down, but he thanked God he was most of the time down. There are one or two things that are of great practical value to us as practitioners, and Dr. Dorsett mentioned one of them. One was to do something for these cases before, during, or after operation, to keep up blood pressure, to keep up elimination, to keep the sewers open, and everything well washed out. Now, I believe the essayist obtained great good on account of the quantity of normal salt solution which he left in the peritoneal cavity; but he would have had the same results, in my opinion, if he had put it into the patient's vessels directly through the rectum, or by subcutaneous diffusion of the normal salt solution. The chief thing was that the doctor did his work promptly, in that he diluted the toxins; he washed out the toxins, got out of the way, and give his patient and the patient's normal recuperative powers an opportunity to get well. That is the great lesson of modern abdominal surgery. The last speaker (Dr. Smith) called our attention to an important point, namely that it is infectious matter or pus under tension that does harm. We must relieve this pressure by incision and drainage. I would almost just as soon use sterile water in these cases as normal salt solution except for its value when it gets into the blood. The fact is that Dr. Murphy keeps these patients continually wet with salt solution. The majority of these patients are dehydrated. Their eliminators cannot act because they have not any material with which to help elimination, and the most convenient means is normal salt solution, and next to that quick work, with constant drainage—this is my idea of successful abdominal surgery.

DR. J. W. McLAUGHLIN, Austin, Texas:—I want to call attention to one point which may be theoretical, and I do not know that there is anything in it. The modern explanation of physical facts is the theory of ionization. As a matter of fact, when you put salt in water in the percentage spoken of in this paper, three-fourths of one per cent, the salt is separated into ions which do not remain in the salt. There is the ion of chlorine and the ion of sodium, and this discussion has led me to think that possibly the chlorine there may have more effect as an antiseptic than we give the salt credit for, and possibly the effect from using normal salt solution is due to the ionization that occurs in the abdominal cavity; possibly it is the chlorinei on that has the antiseptic effect.

DR. TAYLOR, (closing the discussion):—I wish to thank the gentlemen who have taken part in this discussion. I do not claim that the small amount of salt mentioned in my paper is an antiseptic. I do not know whether it is or not. I do know that it did the work in the cases I have related. It is more probable that stimulation of the peritoneum itself is what produces the favorable results. As to this method producing shock, as pointed out by some of the speakers, the very fact of using the saline solution in the abdominal cavity overcomes shock. As to drainage, I know it is against the rules of the medical profession to close the abdomen in such cases as I have described, but Gentlemen, you know when you introduce drainage or any other foreign body, into the abdominal cavity, there occurs at once adhesion of the parts around the drainage tube, which separates it from other parts of the abdominal cavity. That is what it did in the case I referred to here, where I removed a drainage tube, having had total obstructions of the bowels, finding the tube was not communicating with the peritoneal cavity, and pus accumulating in any other part could not have got out. In these cases it is better to close the abdomen after the cavity is thoroughly cleansed, and should an abscess form at any point, it would be time to introduce drainage. I have always employed normal salt solution by the rectum, and find it beneficial. On account of the beneficial effect of the saline solution by the rectum, and by intravenous injection, I was led to use it in this case, knowing it had the power to overcome shock, and at the time I had this first case, where the man's abdominal cavity was filled with onions,potatoes and meat,such as a workingman eats at noon, which was generally disseminated and mixed among the folds of the intestines, and I could not close that up and employ drainage without the patient becoming septic. My idea is that it is necessary to wash the material out of the abdomen in some manner, and it was the fact of the salt solution being a stimulant and overcoming shock, which caused me to use it in this case. In using salt solution in the abdomen, it is not necessary to handle the intestines any more than if you do not use it, and it would not cause any more shock or irritation than the introdution of a drainage tube. I know this practice is against the accepted rules of surgery, but there are a great many things done which are against "accepted ,rules," otherwise there never would have been any progress and surgery would not have attained the high standard of the present day. I have reported these cases just as they happened for your consideration.

Kansas City, Mo., March 17, 1909.

Dr. J. M. Taylor, Ft. Smith, Ark.

Dear Doctor: I have carefully read your excellent paper on abdominal drainage, which you read before the Medical Society of the Southwest, in Kansas City last November.

Now doctor, I readily understand that your paper was based on a large personal experience, and as I have had the pleasure of seeing the results in a few of your cases, I cannot help but flatter you, by telling you that I am leaning more and more to your radical idea of non-drainage.

Since November, I have had several cases in which I used no abdominal drainage, with better results than I would have otherwise expected. Of course the question of drainage is dependent to a considerable extent, on the experience and notions of the individual surgeon and the individual case; and although drainage is used much less at the present time, than in former years, and as we understand the physiology of the peritoneum better and better, yet, in localized virulent infections, I think it safer to drain if only for a day or two. I believe, however, when a surgeon deems it necessary to use a drain, he should have in mind two purposes, first, to encourage the focalizing of temporary septic material at a point whence it can be deflected from invading the general abdominal cavity, and thence the general lymphatic system; and secondly, to establish an impermeable barrier about a point of infection, thereby preventing the transportation into the lymphatics, of persistent infection.

In my experience, I have found that absorption into the lymphatics takes place more rapidly from the upper peritoneum, while the pelvic peritoneum is slow to absorb. This fact readily explains my ideas in placing the patient in the Fowler position, of which I made you familiar when you were visiting our hospital.

I am frank to admit that I believe with you that the peritoneum is doubtless able to dispose of a large amount of septic material, and that drainage is consequently unnecessary in a large proportion of septic cases.

With kindest regards, I am sincerely,

W. A. SHELTON.

ACUTE TRAUMATIC TETANUS TREATED BY MAGNESIUM SULPHATE.

With Report of a Case in the Treatment of which Injections of an Aqueous 25 per cent Solution of Magnesium Sulphate were made in the Spinal Subarachnoid Space with Recovery.

AIME PAUL HEINECK, M. D.

CHICAGO, ILL.

Professor of Surgery, Reliance Medical College; Adjunct Professor of Surgery, University of Illinois; Surgeon to the Cook County Hospital.

Our knowledge concerning this acute infectious disease is incomplete. Numerous are the features of this intoxication that call for elucidation. We know that the disease occurs sporadically, endemically (1), and epidemically; that there is no age, sex, or race that is immune. It has occurred in Iceland. It is very prevalent in the tropics. In reference to race incidence, it must be stated that it is considered by most observers to be more frequent in the dark-skinned races than in the white race, even in the same country. The disease has a variable period of incubation; on an average, in the acute form, from five to ten days elapse between inoculation and the appearance of the symptoms-complex of this condition. A short period of incubation implies intensity and virulency of infection, and is of bad prognostic omen. Though it is not believed that one attack confers immunity against other attacks, cases of second attacks are not known (7).

Though this disease is comparatively rare, it occurs in such unforeseen (8) conditions, and usually has such a dramatic outbreak and such a fatal termination, that it is of interest to all medical practitioners. It has complicated burns (2). It has complicated frost-bites. It has complicated horse bites. It has followed such insignificant trauma as is associated with the hypodermic injections of quinine (3), with the subcutaneous administration of antiplague serum (4), with the application, for hemostatic purposes, of gelatine to bleeding surfaces, with the subcutaneous employment, for hemostatic or other purposes, of this same agent (5) with the operation of vaccination (6), of circumcision of the removal of adenoids. It has followed the employment, in operative procedures, of contaminated catgut, it has followed contused wounds of the outer canthus of the eye (9), and other wounds so insignificant that at the time of infliction they passed unnoticed, or if noticed, they were completely forgotten at the time of the outbreak of the disease. The disease may occur after child-birth, and may occur after abortion, accidental or induced (10). As a result of Fourth of July injuries in 1903, there were 406 deaths from tetanus as compared with 60 from other sources (11).

Since the discovery by Nicolaier, in 1885, of the bacillus tetani, and its growth, in pure cultures, by Kitasato, in 1889, it has been amply demonstrated that all clinical forms of tetanus; cephalic tetanus (12), tetanus neonatorum (13), puerperal tetanus (14), post-operative tetanus (15), traumatic tetanus, are due to the bacillus tetani. The inoculation of the offending germ occurs through an abrasion or through a wound of a cutaneous, or a mucous surface. Tetanus is an implantation infection. In the lower animals, all experimental efforts to produce the disease, through either the respiratory or the alimentary tract, have proved unsuccessful. In man, as far as we know, the same condition obtains. No case is on record of the disease occurring in man, as a result of infection taking place by inhalation or ingestion of the tetanus bacilli. The bacillus, though not a pyogenetic germ, is not hindered in its development by the presence of the germs of suppuration. The latter, in fact, create conditions favorable for its growth (16). As a wound complication, the frequency of tetanus has markedly lessened since the generalization of the antiseptic treatment of wounds.

The disease has no characteristic pathological anatomical changes (that, is none have to this date been determined, or rather, demonstrated). No constant changes have been found either in the peripheral nerves or in the cerebrospinal nervous system.

The diagnosis offers no difficulties. In all forms of the disease, the chronic cephalic form excepted, the mortality is appalling. In an editorial in the Journal of the American Medical Association (16a) it is stated that the "usual rate of mortality for traumatic tetanus is probably about 80 per cent." Stewart (17) says that "the mortality is greatest in the puerperal type, extremely few cases recovering. It is said that recovery is almost unknown in tetanus after abortion." This high mortality is due to the fact that the measures actually employed in the treatment of this disease are ineffective. It is notorious that the drug treatment of this disease has been without efficacy. Many are the medicinal agents that have been employed in the treatment of tetanus. The indication for their employment has been found chiefly in the controlling or depressing influence which they exert upon muscular action. Opium (18), carbolic acid (19), physostigmine (20), the bromides and chloral hydrate (21), can be mentioned among the drugs that have been, and still are, employed extensively in the treatment of this disease. These drugs meet more or less successfully isolated symptoms of this disease. Recoveries from tetanus infection are reported in which the medical attendants attribute the happy termination of the disease to the employment of one or more of the aforementioned drugs. Apparently, none of these drugs exercise much influence upon the course of severe cases. In 1904 J. B. Murphy reported a case of tetanus successfully treated by the intraspinal injection of solution of eucaine B and morphine. Very mild cases recover with, perhaps despite, any of the various forms of treatment.

For prophylactic and for curative purposes, antitetanic serum in liquid or solid form is widely employed. Different routes are employed to introduce the liquid serum into the human organism. The injections of the serum may be subcutaneous, intramuscular (21a), intravenous (22), intraneural (23), intracerebral (24 and 30a, Girard,) or intrapinal (25). In the intraspinal method, some clinicians introduce the antitetanine in the epidural space (26); the majority, however, make the injection in the spinal subarachnoid space. In all wounds of a supsicious nature, such as those in which there is much contusion of tissue, such as are soiled with street-dirt or garden-earth, in all gunshot wounds, in wounds occurring in individuals who work around horses, in horseshoeing establish ments, or in stables, it is the practice of most surgeons to inject for prophylactic purposes, in the wounded individual, from 2,000 to 3,000 units of antitetanic serum. The sooner after the injury the serum is injected, the greater is its protective power, the greater is its prophylactic potency. For the last ten years, in all individuals having wounds of the nature described above, I have injected for prophylactic purposes invariably, antitetanic serum. I have never seen a case of tetanus occur after attempted immunization. It must be stated, however, that, lately, the immunizing properties of antitetanic serum have been disputed. Some cases of tetanus have been reported which show that antitetanic serum is not invariably successful in preventing the outbreak of the disease. Jacobson and Pease (21a) were able to collect six cases occurring in the United States and Canada, in which despite the previous prophylactic use of antitetanic serum tetanus developed. In all but one of these cases, recovery ensued. Reynier (27) was able to collect from the literature thirty-one other cases of tetanus that had developed subsequently to attempted immunization by prophylactic injections of antitetanic serum. To these, he added one personal case. In this series, though the antitetanic serum did not prevent the disease, it, apparently, in most of the cases, attenuated the symptoms and positively lessened the mortality rate. Mauclaire Gazette des Hopitaux, 1903, No. 43 p. 439 reports a case of tetanus consecutive to a fracture of both bones of the forearm due to a horsebite. A prophylatic injection of antitetanic serum was administered, but nevertheless the disease developed. It was an attenuated form of the disease. It lasted 25 days, treatment antitetanic serum and chloral. Recovery. In the lower animals, the immunizing properties of antitetanic serum have been repeatedly demonstrated. In laboratory experiments, the serum being usually injected either simultaneously with, or immediately after, the injection of the toxin, neutralization is easily effected and tetanus does not develop. Owing to the employment as a preventive of tetanus of antitetanic serum, by veterinarians, this disease as a wound complication after castration of horses has almost completely disappeared. In the human subject, the immunizing properties of antitetanic serum are not as universally acknowledged.

As in immunizing doses, antitetanic serum is perfectly innocuous, we urge, until more light be thrown on the subject, that it be employed as a prophylactic agent against

tetanus. Schwartz (30a) in 300 injections noticed no other accident but an occasional erythema (5 cases). In the opinion of many clinicians, its value as a preventive of the disease is established (30). Delbet, Demoulin (27), and Kummer (28), and innumerable other observers, have never seen tetanus develop in a patient to whom, shortly after the infliction of his injury, an immunizing dose of antitetanic serum had been administered. It must be stated, however, that the value of antitetanic serum, as a prophylactic agent, is based on belief, on clinical observation, and not on scientifically demonstrated facts. In the Paris hospitals (27) prophylactic injections of antitetanic serum were not employed between the years of 1886-1890, inclusive. During this period there were in the city of Paris 135 deaths from tetanus. During the years 1901-1905, inclusive, the prophylactic injections were employed in nearly all, if not all, the Parisian hospitals. The serum during this same period was also extensively employed as a curative agent. During the years 1901-1905 inclusive, there occurred in Paris, 153 deaths from tetanus.

In the prophylactic treatment of tetanus, in addition to the administration of antitetanic serum, all suspicious (suspicious from the standpoint of tetanus development) wounds should be subjected to vigorous and thorough antiseptic treatment. Lowering of vitality by bruising, and incorporation of foreign material, favor but are not essential for the development of tetanus. Like all sporulated microbes, the bacillus of Nicolaier offers great resistance to the action of antiseptics.

The following table is taken from an article by Scherck (29). It constitutes quite a forcible plea for the prophylactic employment of antitetanic serum.

Cases of Fourth of July injuries treated in the city dispensaries of St. Louis:

Years	No. Case	Antitetanic serum	Death from tetanus
1903	56	no	16
1904	37	yes	none
1905	84	yes	none
1906	170	yes	none

In the treatment of numerous cases of tetanus occurring in the human subject, antitetanic serum has been employed. In many cases thus treated, recovery ensued. It is conceded, however, that in the great majority of cases in which this agent has been used, whatever may have been the route of introduction of the serum into the human system, the results have been disappointing. The cases have terminated fatally, not on account of the administration of antitetanic serum, but because of the inefficacy of the latter as a curative agent for tetanus. So extremely unsatisfactory have been the results attending its use, that though still extensively employed, it is regarded as inefficacious by all, being employed for want of a better agent. The serum exerts but little influence on the course of the malady, and despite it use, the large majority of cases result in death.

Jacobson and Pease (21a) say, "It is apparent that after tetanus is fully established, serum therapy, however administered, promises but little as a curative agent." In a discussion before the Société de Chirurgie de Paris (27), in which most of those present participated, the opinion was general that, as a curative agent for tetanus, antitetanic serum in the human subject is of doubtful efficacy. Calmette, himself, expresses the opinion that antitetanic serum has no curative power, but that in chronic tetanus, it markedly shortens the duration of the illness. The report of a case, in which a comparatively new mode of treatment has been employed with success, finds its justification in the fact that in the present state of our knowledge all forms of treatment, in this disease, are extremely unsatisfactory.

Mr. Otto Copeck, 17 years of age, Bohemian by birth, was admitted to the West Side Hospital on October 22, 1908. Eight days previous to admission he had stepped upon an old rusty horseshoe nail, thereby sustaining a punctured wound of the left foot. Though no attempt at disinfection had been made, this punctured wound, about an inch in depth, had by the time of admission, healed by first intention. Two days before admission, patient suffered from general malaise. On October 21st, neck began to feel stiff and sore, and patient began to experience some difficulty in opening his mouth. On the morning of October 22d, Dr. Vasumpaur was called, examined the patient, and made a diagnosis of acute traumatic tetanus. He gave a subcutaneous injection of 2,500 units of antitetanic serum, and ordered that an ambulance be called, and that the patient be conveyed to the hospital and placed under my care. When I first saw the case, the manifestations of the disease were so classical that the diagnosis of tetanus was self-evident. There were present trismus, retraction of the head, marked rigidity of the cervical, thoracic, and abdominal muscles, opisthotonos, etc. The angles of the mouth were drawn outward and downward, the upper lip firmly pressed against the teeth, producing the facial ex-

pression which is almost invariably present in this disease. The voice was feeble. Slight disturbance of the patient, as by loud talking, opening and closure of the door, etc., would excite convulsive seizures of about ten seconds' duration. The patient remained in the hospital twenty-eight days. The period of convalescence began on the tenth day after admission to the hospital and was uneventful. His treatment after the first ten days consisted merely of careful nursing. During the first eight days of the active stage of the disease, patient suffered from retention of the urine. The application of fomentations to the hypogastrium having failed to relieve the condition, he was catheterized three times daily from October 22d to November 2d. No vesical disturbance resulted. During this same period patient was obstinately constipated. Cathartics per mouth and rectal enemata being without influence, resort was had to the subcutaneous administration of physostigmine salicylate in doses of gr. 1-100, and relief was thereby obtained. In the acute stage of the disease, two such doses were taken. In the first few days, attempts to give enemata would provoke convulsive seizures.

From October 22d to November 2d, inclusive, patient's diet was wholly liquid. On the evening of November 6th, he was started on semi-solid food. On the 19th of November he was discharged. During the active stage of his illness, our patient received, to combat insomnia, an occasional dose of morphine. On admission into the hospital, 4,500 units of antitetanic serum were injected in the spinal subarachnoid space 1,500, units subcutaneously around the left sciatic nerve, just beneath the gluteal fold 1,500, units in the region of the anterior crural nerve, about an inch below Poupart's ligament. On October 23d, 7,500 units of serum were injected subcutaneously. On October 24th, 6,000 units were introduced in the spinal subarachnoid space. On October 25th, 6,000 units were injected in the subarachnoid space, 1,500 units in the left foot, in the region of the wound of inoculation, and the same amount around the left sciatic nerve. On October 26th, 6,000 units were injected in the subarachnoid space, and 3,500 units subcutaneously around the left sciatic nerve. On October 28th, 4,500 units were given subarachnoidally, 1,500 units in the left sciatic nerve, and 1,500 units in the left foot. On October 30th, again 6,000 units were injected into the spinal subarachnoid space and 3,000 units subcutaneously.

All the injections in the subarachnoid space were made either through the interspace between the spinous processes of the third and fourth lumbar vertebrae or through that between the fourth and fifth lumbar vertebrae. For these injections as well as for those of the aqueous solution of magnesium sulphate, anesthesia was not used. Anesthesia is not necessary. General anesthesia is decidedly harmful in these cases. It has determined deaths. Five injections, each of 5 c.c., of an aqueous 25 per cent solution of magnesium sulphate, were introduced into the spinal subarachnoid space. The path of injection was the interspace between the spinous processes of the fourth and fifth lumbar vertebrae. The needle was inserted about 2 cm. to the side of the median line, on a level with an imaginary line extending between the highest point of each iliac crest. None of the solution was injected until a few drops of clear non-blood-stained cerebrospinal fluid had escaped.

The magnesium sulphate infections were made on the 23d, 25th, 26th, 28th and 30th of October. Each injection was followed by marked lessening of muscular rigidity and noticeable improvement in the patient's general condition. Upon reappearance of the sypmtoms to an extreme degree, the injections would be repeated. After the first injection, the rigidity of the lower limbs never returned to any but a slight degree. I cannot but be of the opinion that the magnesium sulphate was a contributory factor to the patient's recovery.

Previous to our employment of magnesium sulphate, it had been used by other clinicians. Their cases follow. In some of these cases, death occurred; in others, recovery followed. The cases as yet are too few in number for any definite opinion to be expressed as to its value. A more exact dosage must be determined. Greater proficiency in administering must be obtained. The results, however, have been sufficiently encouraging to warrant, in fact, to demand, further study of the subject. The experimental work on this subject has been done chiefly, almost wholly, by Meltzer and Auer (31). They determined that intraspinal injections of magnesium salts are capable of abolishing completely in monkeys, at least temporarily, both tonic and clonic tetanic contractions. Clinically, experience seems to partially bear out the further statement of these investigators that intraspinal injections of magnesium sulphate in doses which do not affect the respiratory center or other vital functions, are capable of abolishing completely all clonic convulsions and tonic contractions in cases of tetanus, occurring in the human subject. The relaxing effects of the injections may last twenty-four hours

or longer. In the case which I report, none of the vital functions were influenced by the intraspinal injections of magnesium sulphate. In some parts of the body, such as in the lower extremities, the muscular relaxation following upon the injections was complete. In other portions, such as the mandibular, facial, or cervical mucsles, the rigidity was very much lessened, but it was not completely overcome. Was it due to insufficient dosage, I am unable to state. Appended to the article is a temperature, pulse, and respiratory chart, in the perusal of which it will be seen that the injections at times were followed by an elevation of temperature. This has been noted by other observers. In Miller's (33) case, the injections determined a profuse secretion of mucus, bronchorrhea, at times severe enough to embarrass respiration, but easily controlled by atropine. Was there a relation of cause and effect between the injections and the elevation of temperature? This must also be decided by further study of the subject. Meltzer and Auer (32) have determined that when administered by the intravenous route, the magnesium salts are very toxic, and that even small doses completely inhibit the respiration. Therefore, for the administration of these salts, this route, the intravenous route, should never be employed. We employed the agent only in the shape of injections in the spinal subarachnoid space.

In all of the tabulated cases, the magnesium sulphate was injected in the subarachnoid space. The solution has also been used subcutaneously in the following three cases:

Lyon (35) reports the following case: Male, 7 years, stepped on a nail which entered left foot after perforating sole of his shoe. It barely penetrated the skin. Wound scarcely noticeable. Eight days later complained of stiffness of foot and of leg. Convulsions on the ninth day. On the eleventh day, the jaws were set and almost all of his muscles were rigid. The wound was opened and treated with peroxide of hydrogen and tincture of iodine. Morphine, chloral and bromides partially controlled the convulsions. On the twelfth day, 2 drachms of magnesium sulphate in 4 oz. of distilled water, were injected under the skin of the abdomen. At end of two hours, jaws could be opened 2 cm. Muscles were markedly relaxed. On the 13th, 14th, 17th and 19th days, the magnesium sulphate injection was repeated. The convulsions had become infrequent and mild. Twice there was bronchorrhea. A vesicular eruption covering the whole body appeared on the 14th day. The vesicles were pin-head size and were filled with a clear fluid. In a week, these dried up and disappeared with exfoliation of the epidermis. Digitalis necessary to improve heart action after first week. During the patient's convalescence, tonics were given for the anemia. Able to sit up on the 30th day. Walked as usual in about ten days more.

Greeley (36) employed, with success, magnesium sulphate in aqueous solution in two cases of tetanus. As his mode of administration was the subcutaneous, we will briefly mention and not discuss them. The first case occurred in a boy, 2 years old. The child had stepped on an old garden rake and lacerated the web between the great and the adjoining toe of the left foot. After an incubation period of ten days, the symptoms appeared. Greeley administered 7,500 units of antitetanic serum. In addition, every two hours, 5 grains each of chloral hydrate and of potassium bromide were administered. By hypodermoclysis, one pint of distilled water containing 2 drachms of magnesium sulphate were introduced into the organism. This was repeated on the next day. Recovery followed.

Greeley's other case was one of chronic tetanus. Four weeks elapsed between the inoculation and the outbreak of the symptoms. By hypodermoclysis, 3 drachms of magnesium sulphate dissolved in a pint of distilled water were introduced into the organism. Recovery ensued.

Wm. Hessert (34) a few weeks ago showed to the Chicago Medical Society a case of acute tetanus successfully treated with subarachnoidean injections of an aqueous 25 per cent solution of magnesium sulphate.

We cannot, and we are unwilling to, make any statement as to the value of magnesium sulphate as a therapeutic agent in the treatment of tetanus. The cases in which this agent has been used, are, as yet, too few in number to allow the expression of an authoritative opinion. Further laboratory experiments and numerous clinical reports are needed. The animal experiments conducted by Cruveilhier (37) are too few to be conclusive. His findings are contradicted by clinical observers. We would refer the reader to the following cases. The faith which Cruveilhier reposes in antitetanic serum as a curative agent is not warranted by the results that this agent has yielded.

We used magnesium sulphate, in the method stated above, in our case, and the results were so surprising an so satisfactory that we feel justified in urging its use in tetanus. It is important that the utility and the value of this drug as an agent to control the tonic and clonic muscular contractions so characteristic of this disease be exactly

determined. Its value must be decided by the combined experience of clinicians the world over.

1. Blake, Jos. A. The use of magnesium sulphate in the production of anesthesia and in the treatment of tetanus. Surgery, Gynecol. and Obst., Chicago, 1906, Vol. ii, p. 541. Male, 15 years, weighs 115 pounds. Period of incubation, seven days. Previous immunization none. Nature of wound, crushed first three fingers of left hand.

Other Treatment.—Antisptic disinfection of wound. On third day of disease (tenth of injury) 40 c.c. of antitetanic serum injected in spinal cord between 4th and 5th cervical vertebrae. Twenty c.c. injected in median cephalic vein. On night of same day 20 c.c. inject in median basilic vein. On eleventh day after injury, 35 c.c. of antitetanine serum injected in spinal canal by lumbar puncture. Chloral hydrate and morphine given when patient not under the effect of magnesium sulphate. Magnesium Sulphate treatment.—On 12th day of injury intraspinal injection of 4.5 c.c. of magnesium Sulphate (25 per cent.), 33 hours later repeated injection, 37½ hours later intraspinal injection 8 c.c. of a 12½ per cent solution of magnesium sulphate; 27 hours later repeated above injection. Six days after repeated same injection. Result, recovery. Injections have a marked effect in restraining the convulsions and relieving pain, thereby conserving strength and preventing excessive metabolism and heat production.

2. Markoe, F. H. Reference same as case 1, p. 549. Male, 4 years, weighs 40 pounds. Period of incubation, seven days. Previous immunization, none. Nature of wound, sloughing wound of skin and subcutaneous tissue of the right leg. Four injections each of five c.c. of antitetanic serum were injected into buttock, the external jugular vein, the spinal canal, and back respectively. Occasional doses of morphine and chloral; 1.5 c.c. of a 25 per cent solution of mangesium sulphate were slowly injected into the subarachnoid space. Died twenty-eight hours after first symptoms of disease appeared. Death cannot be attributed in the slightest degree to the magnesium sulphate. On autopsy cultures of tetanus bacillus were obtained from the wound, spleen, and heart blood, showing a marked tetanus bacteriemia.

3. Logan, Samuel. The treatment of tetanus by intraspinal injections of magnesium sulphate for the control of convulsions. Jour. A.M.A., 1906, Vol. xlvi, p. 1502. Male 11 years, weighs 80 pounds. Period of incubation, eight days. Previous immunization, none. Gunshot wound of hand with old toy pistol loaded with blank cartridge. Simple cleansing of wound after development of the disease. On day of admission 50 c.c. of antitetanic serum injected intraspinally. Chloral hydrate, gr. 15, sodium bromide, gr. 30, every four hours. On third day after admission 10 c.c. antitetanic serum injected in each brachial plexus, in each sciatic nerve, and into the tissues around wound, in all 50 c.c. On third day after admission general anesthesia; 4 c.c. of a 25 per cent solution of magnesium sulphate injected in spinal canal by lumbar puncture. On fourth day again gave patient general anesthesia and injection in subarachnoid space by lumbar puncture 50 minims of 25 per cent solution of magnesium sulphate. Died 40 hours and 50 minutes after first injection of magnesium sulphate. Heart failed before respirations affected. Temperature post mortem 108.2 F. per rectum. Complete cessation of muscular convulsions following introduction of magnesium sulphate.

4. Logan, Samuel. Reference same as above. Female, 24 years. Period of incubation, 17 days. Previous immunization, none. Nature of wound, vaccination. One hundred c.c. of antitetanic serum injected subcutaneously. Thirty hours after appearance of first symptom, wide excision of vaccination wound, and dusting of surface with dried antitetanine serum. Thirty hours after first symptoms were noticed 4 c.c. of a sterile 25 per cent solution of magnesium sulphate were injected into spinal subarachnoid space by lumbar puncture. Local anesthetic employed; 17½ hours later injection was repeated. Died fifty hours after appearance of first symptoms. No good resulted from the use of the magnesium sulphate solution. Patient was moribund when second injection of magnesium sulphate was made.

5. Franke, Margan. Ein Fall von tetanus behandelt mit intra duralem injectionen von magnesium sulphuricum. Zentral. fuer Innere Medicin, 1907, Vol. xxviii, p. 344. Male, 32 years. Period of incubation, twelve days. Previous immunization, none. Wound of the middle finger. Energetic antiseptic handling of wound is recommended by this author. Amputation of finger. Chloral hydrate, gr. 30, per rectum daily. Nineteen days after infliction of injury, intradural injection of 1 c.c. of sterilized 25 per cent solution of magnesium sulphate. Five days after above intradural injection of 2 c.c. of same solution. Four days later repeated same injection. Injecting needle

broke in tissues. Removed by operation. Recovered. Franke noticed after each injection of magnesium sulphate that there was a lessening of contracture, also noticed that the injections exerted a beneficial action on the muscular convulsions. Sleep was better. Nourishment possible.

6. Robinson, G. Cany. Treatment of tetanus by intraspinal injections of magnesium sulphate. Jour. A.M.A, 1907, Vol xlix, p 493. Male, 11 years; weight 67½ pounds. Contusion of scalp. Previous immunization none. Played considerably around stable. Excised supposed wound of entrance. Chloral hydrate, gr. 30, sodium bromide, gr. 60, every 24 hours for the first two weeks. On the eleventh day of the disease, patient was anesthetized. Ethyl chloride used as a general anesthetic. Three c.c. of a 25 per cent solution of magnesium sulphate injected in subarachnoid space. On the next day repeated injection, using 3½ c.c. On the fifteenth day of disease injected in same locality 4 c.c. of same solution. Recovered. Author states that the intraspinal injections of magnesium sulphate produced marked lessening of the very severe symptoms for a number of hours. The muscular rigidity was never so severe after each injection as it had been before.

7. Meltzer, S. J. and Auer, Jno. The Journal of Experimental Medicine, 1906, Vol. vii, p. 705. Male, 35 years. Period of incubation, four days. Insignificant wound of foot, which healed rapidly. Large doses of antitetanine serum and sedatives gave no relief. Two hours before death, an intravenous injection of antitoxine serum was given. One intraspinal injection of magnesium sulphate 1 c.c. to every 18 pounds of body weight. Died five hours after injection of magnesium sulphate solution in subarachnoid space. Anesthetizing and relaxing effect complete. Respiration good to end.

8. Miller, Robert T. Treatment of tetanus with subarachnoid injections of magnesium sulphate. The Am. Jour. of the Med. Sciences, 1908, Vol. cxxxvi, p. 781. Male, 7 years; weight 60 pounds. Period of incubation, seven days. Previous immunization, none. Lacerated wound of left hand. Antitoxin daily for fourteen doses varying from 1,500 to 7,000 units. Sedatives for a short time. Copious saline enemas and infusion. Eleven lumbar punctures made within thirteen days. Approximately 25 c.c. of a 25 per cent solution of magnesium sulphate being injected into the meninges at each puncture. Recovered. "Of the value of the treatment by magnesium sulphate, no one who witnessed this case has any doubt." The muscular paralysis following each injection lasted from 18 to 29 hours. It involved all muscles, except those of head, neck, and diaphragm. The injections were followed several times by respiratory collapse lasting 11 to 14 hours and the pulse dropped, though not to a dangerous degree.

9. Case I. Henry, Jno. Norman. International Clinics, 1908, series 18, Vol. iv, p 1. Male, 9 years. Period of incubation, six weeks. Previous immunization, none. Abrasion of skin of back by kick of horse. Lumbar puncture 3 c.c. of 25 per cent solution of magnesium sulphate injected in subarachnoid space. Five days later subarachnoid injection repeated. Recovered. The case was a severe one. Made an excellent recovery. Each injection was followed by a relaxation of the rigidity.

Case II. Male, 19 years, weight 123½ pounds. Period of incubation seven days. Previous immunization, none. Stepped on a nail. At time of admission the wound was healed. Wound of foot excised. Lumbar puncture 6 c. c. of sterile solution of magnesium sulphate injected into spinal canal. Ethyl chloride used as anesthetic. Died. Admitted July 30th, died August 2d. One hour after injection patient was entirely relaxed. A rise of temperature followed the intraspinal injection.

Case III. Male, colored, 9 years; weight 55 pounds. Period of incubation, six days. Previous immunization, none. Stepped on nails with both feet and inflicted punctured wounds. Lumbar puncture, 4 c.c. of clear spinal fluid withdrawn; 2½ c.c. of 25 per solution of magnesium sulphate injected into spinal canal. Two days later repeated injcetion, only gave 2 c.c. at second injection. Died. A rise of temperature followed each injection.

Case IV. Male, 45 years. Period of incubation, three weeks. Previous immunization, none. Stepped on nail. On same day as second subarachnoid injection, 18 c.c. of antitetanus serum were given subcutaneously. On the morrow 30 c.c. of antitetanic serum were injected into the left buttock. Six c.c. of 25 per cent solution of magnesium sulphate injected into subarachnoid space by lumbar puncture. Three days after above, performed lumbar puncture, removed 35 c.c. of clear spinal fluid, and injected 6 c.c. of solution of magnesium sulphate. Died on evening of second day following second injection. "It is very much a question whether the magnesium sulphate did not contribute to the patient's death."

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DRINKING HOT WATER.—People do not drink hot water now, as they did a few years ago. Many serious gastric affections followed in the wake of the era of hot water guzzling. The drinking of warm water in certain types of dyspepsia may be all right, but taking it too hot may cause irreparable damage to the stomach mucosa.

WHEN the vesical ureteral orifice is dislocated, retracted, drawn laterward and proximalward the length of the ureter is not only diminished, but its lumen is compromised, hence, the urine is forced throgh the ureter with difficulty. Obstruction is the reno-ureteral function proceeds swiftly onward and swiftly downward to final destruction.—Bryon Robinson.

THE ROENTGEN RAY AND THE ETIOLOGY OF CANCER.—William H. Dieffenbach (Medical Record, March 27, 1909), of New York, goes over the various theories of the causation of cancer and rejects them all. He believes that neoplasms are due to interfereuce with normal cell production by trauma, pressure, severe inflammations, or constant irritations. These factors act upon cell proliferation by producing abnormal cells, which in turn generate cells of their own kind under continued irritation. When the irritation or inflammation subsides, if trophic conditions are normal, the tissues return to the normal state. If the trophic nerves have been interfered with riotous development of the new progeny of cells may supervene. If the trophic nerve supplying the part is severed or permanently inhibited, ulceration will take place. This theory places the etiology of cancer upon a rational basis, and permits us to guard against its formation by prophylactic measures which are easily carried out. The experience with the Roentgen ray has killed the bugbear of hereditary predisposition to cancer and has annihilated the germ theory of its causation.

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EDITORIAL

The State Meeting

THE annual meetings of the various State associations will very shortly convene, and it is none too early to urge on phyicians the great benefit which may be theirs if they will attend and participate in the scientific work of these organizations. The Missouri Society returns to Jefferson City and preparations are being made for a much larger attendance than any before. The program committees of the sections have been more than usually exacting and have secured full programs with papers which promise to be uniformly excellent. Those who have attended previous meetings in the Capitol city need no suggestion from us that it is wise to secure hotel accommodation in advance; to others we would say that a definite assurance that you have hotel reservation secured considerably in advance will contribute materially to your comfort during your sojourn in Jefferson City, though you will find the Jeffersonians a most hospitable people who gladly open their homes to visitors and do their utmost to make up for lacking hotel accommodation.

Personalities in Medical Politics.

IT goes without saying that so tremendous an organization as the American Medical Association could not have been organized and be conducted in a manner that would prove absolutely satisfactory in its every detail to each of the many thousand members; it is also too much to expect that its officials can be so selected that there will not be among them those who are not pleasing to certain elements of the body. The most that could be hoped for would be officials so filled with respect for the organization, and the honor which election to its service carries, that they would devote the best of themselves and an untiring energy in its behalf, placing its repute above all personal ambitions.

We must confess that we feel that the Association has not been so fortunate as to get an unsurpassed official family; the same is true of most if not all of the state societies making up the body, and we are hearing more and more of cliques and rings and select coteries, of medical trusts, of black lists and boycotts, and we appear to be getting into a very unholy state. Whether or not the way out of this disagreeable situation is through an endeavor to eliminate one man is very questionable, however desirable his elimination may appear. We believe that the Missouri situation is fairly representative of that in other states, and we have here in Missouri professional medical politicians, a "boss" even. Judging other states by Missouri it would seem that a wholesale reformation of official makers will be necessary before we can hope to have reformed officials.

The Association seems to be running to the satisfaction of the inside group which controls things, and it's mighty little they care what the rest of us think or what our ambitions for the Association are. But the rapidly growing desire among the membership is for definite information; they are getting dissatisfied with lack of information, and they are disturbed by much criticism from various sources; some are even looking for the bolder spirits who shall lead open revolt or organize a rival institution which shall never invite such criticism as that which certain of our officials have led us into. They want a high grade scientific medical organization, not a medical trust.

Efforts on the part of individuals toward better things have been largely unavailing up to the present, and we have to acknowledge that the only real results that we have witnessed have been those which have been gained through indulging in personalities. We have always objected to personalities, and the picking out of an official in a system and fighting him, when there is something wrong with the system which placed him in power, does not seem the real way to remedy a difficulty. But results begin to show that the individual may need personal attention.

When Dr. G. Frank Lydston published his first paper and in it offered the suggestion that few independent journals would have the courage to reprint it, he gave us no inkling that he had not shot his whole

broadside and, expecting nothing more, we thought it no surprising matter that the article was not generously copied. But he had a reserve battery and his guns are still firing, and we believe they have done effective work. Since the last gun there has not been time for the smoke to clear, but it would not seem too much to expect that there should be a vista of fearful carnage and at least one corpse.

The American Medical Association has no more loyal members than those who are able to see defects and who are trying to remedy them. Members connected with the independent medical press throughout the country are, as they always have been, proud of our great association and all that it stands for; they are ready to defend it when it is right to the last ditch and they would have it always "right." There are a few things the association has got to do if it is not to get into perpetual annoyances and the chiefest among them is to maintain an official household which will be above even the suggestion of present or past irregularity.

The Poison Label.

Teh medical profession is quite as interested in the question of the poison label as are the pharamcists, yet the fact that its significance is being encroached on has but been mentioned in the medical press while the drug journals have devoted to it not a little attention. We all recognize that there are poisons and poisons, and that it is necessary to have the lay mind associate the label with those poisons which are definitely dangerous even in small quantities; if the label is to be placed on containers of substances, which may be safely taken in considerable quantities its value will be lost and we will shortly experience a great increase in accidental poisonings as a result. Speaking on the subject the editor of Meyer Brothers Druggist in a recent issue shows that the more common use of the label would be objectionable to physician, patient and druggist, he says:

"The American public is fully aware of the significance of a poison label. There are a great many people who recognize the necessity of handling with caution any medicine which is labeled "Poison." This is true to such an extent that the physicians object to having the word "Poison," placed on a medicine intended for internal use, even though it is very potent. The doctor may caution the patient about using the medicine but would not think of permitting the pharmacist to place the poison label on the bottle for fear of frightening the patient to such an extent that the medicine would not be taken. In fact, the laity at once jump at the concluison that a medicine is only for external use when it is labeled "Poison." The proposition which has been made from time to time, to pass state or federal laws requiring certain medicines for internal use to be labeled "Poison" would soon make poison labels on medicines for internal use commonplace and the public would gradually lose the feeling of awe which is now aroused by the word "Poison." The practice would in time defeat the very object which the laws propose, to protect the public against poison accidents."

Medical Society of the Missouri Valley at St. Joseph.

It was a source of great regret that we were unable to attend the St. Joseph meeting of this flourishing society. We learn from others more fortunate that it was a veritable "feast of reason and flow of soul!" St. Joseph extended her usual measure of good cheer; all the big men on the program were there; the weather conditions were ideal; the women were beautiful, and charmingly entertained; while the new hotel Robidoux added not a little to the enjoyment of the guests. Secretary Fassett sends us an advance proof-sheet of his report, from which we cull the following points: The orators at the evening session were Dr. Walter Wyman, surgeon-general Public Health and Marine Hospital Service, who gave a comprehenive review of the work of his department; Dr. N. S. Davis, Jr., Chicago, made a fine address in Medicine, choosing for his subject, "The Diagnosis of Bright's and Allied Diseases;" and Dr. H. J. Boldt, New York City, whose address in Surgery embraced a masterly paper on "Cancer of the Uterus." Other distinguished essayists were Drs. Cornelius Williams, president Minnesota State Medical Asssociation; Hugh T. Patrick, Chicago; Leon Crafts, Minneapolis; D. S. Fairchild, Des Moines; Jacob Block, E. G. Blair, R. L. Sutton, Kansas City; F. H. Clark, El Reno; E. H. Miller, Liberty; Ida C. Barnes, Topeka; C. C. Goddard, Leavenworth, president Kansas State Medical Society, and many others.

The attendance exceeded three hundred, and forty six new members were enrolled.

Dr. Edith Strong, of St. Louis, reported the proceedings, which will appear in the society's official journal, the Medical Herald.

An excursion to Sulphur Springs, Ark., was a pleasing feature of the meeting, the members leaving St. Joseph on a special Friday night, and spending Sunday at the Springs, where they were entertained at the opening of the new Kihlberg hotel.

The annual meeting of the society will be held in Council Bluffs, Iowa, on September 2 and 3, at which time the election of officers takes place.

The uncultured mind revels in uncouth expressions.—A. Rose.

CHANGES AT YALE MEDICAL SCHOOL.—Beginning with next year, the requirements for admission to the school will include two years' work of college grade, embracing chemistry, biology, and physics. Practically all of the laboratory work will be completed in the first two years at the medical school, and the second half of the course will be devoted to clinical studies.

PROFESSOR VON STRUMPELL, director of the medical clinic in Breslau, has accepted the appointment as head of the third clinic for internal disease in Vienna. The position has been vacant since the death of Professor von Schrotter last May. Professor von Strumpell will take up the new work in April, and will begin his lectures during the latter part of May.

PROF. RAMON GUITERAS, of the New York Post-Graduate Medical School, has been given leave of absence, and is now on a scientific and hunting trip in Central Africa, going by way of the Nile and the lakes. He plans to go north in time to attend the International Medical Congresss at Buda-Pesth in early September, and to make some special study of graduate education as conducted abroad.

A POINT OF ETHICS.—Denver physicians are talking of passing resolutions censuring the doctors and internes at St. Joseph's Hospital for alleged unprofessional conduct, and the matter will be discussed at the next meeting of the Denver County Medical Society. When A. L. DeVlars applied at the hospital to have a self-inflicted wound in his breast dressed two weeks ago, he was given medical attendance, for which he paid, and the hospital authorities immediately notified the police, who arrested DeVlars. Physicians say that from a professional point of view the action of the hospital authorities was reprehensible; that though DeVlars had been a criminal it was not for the physician to tell of it, any more than a lawyer his client when the latter's liberty was jeopardized.

THE REVIEWER'S TABLE

Books, Reprints, and Instruments for this department, should be sent to the Managing Editor, Century Building, St. Louis.

BACTERIAL FOOD POISONING. A Concise Exposition of the Etiology, Bacteriology, Pathology, Symptomatology, Prophylaxis and Treatment of So-called Ptomaine Poisoning. By Prof. Dr. A. Dieudonne, Munich. Translated and edited with additions, by Dr. Charles Boldnau, Bacteriologist, Research Laboratory, Department of Health, City of New York. New York: E. B. Treat & Co. (Price $1.00.)

This manual is well deserving of the highest commendation and rightfully entitled to be classed as one of the best presentations on the subject of "Bacterial Food Poisoning." Charles Boldnau, the translator, has slightly rearranged the material, inserting paragraph headings and adding a number of outbreaks of food poisoning, all of which tend to add to the scope of its usefulness. Thirteen sections, with a chapter on bibliography comprises its contents. The first three sections discuss the subject of meat poisoning, while the remaining respectively treat poisoning through fish and molluscs cheese, ice cream and pudding, potato, canned goods and metallic poisons.

THE CHANGING VALUE OF ENGLISH SPEECH. By Ralsey Husted Bell. New York: Hinds, Noble & Eldredge, Publishers. (Price $1.25.)

Some time since we had the pleasure of reviewing an earlier volume by Dr. Bell on "The Worth of Words," and at the time we were pleasurably impressed with his knowledge of and interest in the preservation of pure English. The present volume emphasizes his close study of the English language and his appreciation of its remarkable changes. The result of his painstaking investigations should prove of interest to all users of the language, but especially will it prove so to those who are doing literary work. This means that the book may be profitably studied by all physicians who will find every page full of interest from the very nature of the text, and will also be attracted by the fact that its author is one of the craft.

PARSIMONY IN NUTRITION. By Sir James Crichton-Browne, M. D., LL. D., F. R. S., etc. 12mo., cloth, pp. 111. London and New York: Funk & Wagnalls Co., Publishers, 1909. (Price 75 cents.)

This volume is an elaboration of the author's presidential address before the section on Preventive Medicine at the 1908 meeting of the Royal Institute of Public Health (Eng). It is a decidedly interesting little volume, in which the author, who is an eminent British medical authority, very cleverly and keenly attacks the theories of Horace Fletcher and of Prof. Chittenden of Yale, and formulates some good, commonsense ideas as to what and how much the normal human being should eat. This is a timely and important topic, and a contribution to dietetic literature by so high an authority as Dr. Crichton-Browne is worthy of attention.

PRACTICAL POINTS IN ANESTHESIA. By Frederick Emil Neef, New York. Small 12mo, pp. 51. New York: Surgery Publishing Co.

A primer of the size of this one is an excellent reference book for the anesthetist to carry in his pocket. Among the topics dealt with are induction of anesthesia, cardiac and respiratory collapse, when shall the patient be declared ready for operation, maintenance of the surgical plane of anesthesia, important reflexes, vomiting during anesthesia, obstructed breathing, use of the breathing tube, indications for stimulation, influence of morphine on narcosis, general course of anesthesia, awakening, recession of tongue after narcosis, postoperative distress, minor anesthesia with ethyl chloride, intubation anesthesia, etc.

PROGRESSIVE MEDICINE, Vol. IV, December, 1908. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M. D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Octavo, 333 pages, with 26 engravings and 2 colored plates. Philadelphia and New York: Lea & Febiger. (Per annum, in four paper-bound volumes, containing over 1,200 pages, $6.00, net; in cloth, $9.00 net.)

The December issue of Progressive Medicine is fully abreast of the reputation of this quarterly for practical usefulness to every active medical man, whether physician, surgeon or specialist. In fact, its contents are purposely limited to the clinical as distinguished from the theoretical aspects of medicine. As brief examples of these characteristics, we may cite only a few of the multitude of topics treated by Dr. Edsall, of Philadelphia, in his 80 pages on Diseases of the Digestive System, if possible the most important in the entire range of human ailments. He points out the clinical bearings of recent physiological researches on the stomach and of psychic influences on digestion, deals with the results of recent X-ray advances in connection with that organ, devotes 10 pages to Gastric Ulcer, Stenosis and Carcinoma, revises to date the recently developed subject of intestinal diverticula, and illuminates the hitherto obscure field of diseases of the pancreas. In the same most cursory manner we may refer to the articles on Renal Tuberculosis and Syphilitic Nephritis in the section on the Kidneys, written by Dr. John Rose Bradford, of London. Bloodgood, of Baltimore, has covered in a hundred pages, the real additions to pratical surgery during the year. His remarks on Surgical Shock deal instructively with a common and serious condition. He devotes twenty-five pages to advances in Surgery of the Blood-vessels, a subject of especial interest at the present time, and the same may be said of his articles on Surgery of the Joints. He closes with twenty pages on Tumors, thus completing in connection with his successive sections on these morbid growths, the most important monograph on the subjecti n the language. Belfield, of Chicago, covers the latest advances in the Genito-Urinary field authoritatively in thirty pages. The assistant editor, Dr. Landis, closes the year with a Practical Therapeutic Referendum, reviewing the advances in both medicinal and non-medicinal treatment, and giving due prominence to untoward results following serum therapy.

Progressive Medicine occupies a unique position by reason of the fact that in it a high authority on each line describes all advances in his own language. It is wholly original, easy and interesting to read, and instructive on just the points the medical man most values, namely, those necessary to bring his own knowledge to date. The writers have the latest medical literature of all civilized countries at command, hence the reader can get in these pages what he could neither find elsewhere nor gather for himself, namely a concise statement of the latest developments in the whole world of medicine.

Dr. Joseph M. Mathews, of Louisville, has resigned the presidency of the Kentucky State Board of Health, a post he held for seventeen years. Resolutions of regret were adopted by the Jefferson County Medical Society, coupled with a request that Dr. Mathews be requested to reconsider his action. Dr. and Mrs. Mathews are in Southern California for the winter.

A Whiskey Selling Physician.—Dr. L. E. Warren, of Marietta, O., was convicted and fined the sum of $2,500 for alleged violation of the Rose local option law. This is the heaviest fine thus far imposed in Ohio for this offense. It seems the authorities are determined to enforce this law. No physician should write a prescription for alcoholics unless there be most indubitable need in a medicinal sense.

Blames School System for Deaths.—Dr. Thomas Darlington, commissioner of Health of New York City, states that heart disease among school children is greatly on the increase. Of the defective children in the schools that have been examined 3,500 had heart disease in some form. During the past two years 1234 children have died of heart disease and only 131 of these were under 5 years of age. With the beginning of school life the rate increased from 28 at the age of 4 years to 286 at the age of 15 years.

MEDICAL PROGRESS

Comprising the Regular Contributions of the Fortnightly Department Staff.

OTOLOGY.

A. F. KOETTER, M. D.

The Hematological Formula in Diseases of the Ear and Its Complications.—(Compilation from the Internationales Central blatt fuer Ohrenheilkunde, G. Ostino.)—Of late years the hematological formula has been the subject of numerous publications in internal as well as in surgical diseases. Especially the result of the number and variety of the leucoctyes, in general and localized infectious diseases in endogenic and exogenic intoxication and in new formation, was studied. Of the different views of various authors some of whom deny the value of hematological examinations, others ascribe such value that it alone suffices for the diagnosis, the majority stand with Tuffier, who insists that hematology offers valuable aid to surgery, without attempting to replace the teachings of the clinic, and it can increase our present knowledge when we wish to learn the nature, cause, results and treatment of disease.

Examination for leucocytes in diseases of the ear was first reported by Wicart (1906) who claims that the mere presence of a middle ear inflammation may cause an increase in leucoctyes from 6,000 to 10,000 with 70 per cent polynuclear cells. In mastoiditis the leucocytosis rises to 10,000—20,000 with 72 per cent polynuclear; in thrombophlebitis to 20,000—25,000 with 92 to 95 per cent polynuclears, in circumscribed meningitis to 20,000-25,000 with 94 per cent, in diffuse meningitis to 35,000—60,000 with 92-95 per cent polynuclear. In brain abscess with membrane formation the leucocytosis is not so intense as in infections, the number of leucocytes only reaches 20,000 with 88-90 per cent polynuclear.

Lermoyez emphasizes the importance of examination for polynuclear leucocytes in lumbar puncture for differential diagnosis between meningitis without bacteria with suppurative liquor (described by Vidal and Lermierre), and suppurative with bacteria. In the former the polynuclear leucocytes preserve their normal appearance while the latter show forms of degeneration which characterize the pus corpuscles. Meningitis without bacteria and intact polynuclears is extremely favorable, of short duration, heal spontaneously and therefore demand no interference.

Moure and Delsaux lay much stress on the hematological examination for the same reason as Wicart. Delsaux insists that a leucocytosis of 10,000—15,000 shows spread of infection from the middle ear to the mastoid process, one of 15,000—20,000 a brain abscess or extradural abscess, one of 20,000—25,000 points to a possibility of a meningitis. These rules are not absolute, and must be combined with the examination of the liquor and the clinical symptoms to aid in the diagnosis.

According to Ira S. Wile a moderate leucocytosis (10,000—15,000) exists in an acute otitis media serosa, in otitis media purulenta it reaches 40,000. In doubtful cases of mastoiditis the blood examination is of great value. The number of polynuclear neutrophiles may be 73 per cent and finally 98 per cent, the percentage is greater when the destruction is marked. If the percentage is less than 77 per cent a complication is not probable, but possible when over 86 per cent, a decrease in the number indicates improvement, but if the absolute leucocytosis diminishes without accompanying decrease of the polynuclear neutrophiles in children denotes a diminished resistance of the organism and interference is necessary. In otitis media purulenta chronica there exists in 25 per cent of the cases a slight increase of the polynuclear neutrophile leucocytes, especially in retention. The brain abscesses are much as abscesses in other parts of the body, they cause a severe leucocytosis, in meningitis purulenta they reach the high number of 20,000—60,000.

McKernon believes that the number of leucocytes in suppurative diseases of the skull are of value in so far as it informs the physician as to the resisting power of the patient. The percentage of the polynuclears is lower in suppurations of the bony cavities than in suppurations of the soft parts. During found an increase of leucocytosis in 66 per cent of the cases of otitis media acuta purulenta; of the polymorphonuclear in 77 per cent, in otitis media purulenta chronica 33 per cent, in mastoiditis 100 per cent, in endocranial complications 88 per cent-100 per cent. It is not possible to make a differential diagnosis between extradural abscess and sinus thrombus in this way, although in the latter the number of polymorphonuclear may be increased. In brain abscesses the leucocytosis is 14,000, in meningitis always more than 17,000.

Fallas in a compilation at the Belgic Oto-Rhino-Laryngolic Congress mentioned the following conclusion: The leucoctyosis in mastoiditis, extradural abscess, cerebra

or cerebellar abscess is very high and very much alike so that it is difficult to make a differential diagnosis in this manner. A very high number of leucocytes may be a sinus thrombus if the examination of the liquor is negative, a diffuse meningitis if positive; but the number of publications on this subject are not numerous, and it will be necessary to continue these examinations.

Cheval at the same meeting reports results of sixteen cases of mastoiditis without complications. The blood examination showed changes of the form elements in which the sinus was thrombosed, he concludes therefrom that these changes are frequent in all cases with complications.

Delsaux has also found that these blood examinations bring more positive results.

At the 12th Italian Congress two reports were made on this subject; one by Solaro, the other by Caldera. Solaro emphasizes the importance of adding the following three hematological examinations for diagnostic purposes: 1st, the absolute leucocytosis; 2d, the leucocyte formula and the presence and frequency of the sudanophile bodies. The complete examination of the leucocytes has no doubt great practical value for the early diagnosis of deep-seated suppuration, which could not be recognized in any other manner, as in spite of its severity and extension it cannot be recognized by objective and functional symptoms.

Caldera examined the blood before and after the operation, in patients with otitis media purulenta acuta and chronica and reached the following conclusions: Independent of the increased or diminished leucocytosis which one meets in patients with suppurating ears, we find, first, that the number of neutrophile leucocytes show a decided increase on the day of the operation, in the days following a decrease, excepting a slight increase at times, due to the nourishment. This leucocyte curve, rising on the day of the operation and then falling is a favorable prognostic sign; a progressive rising curve an unfavorable prognosis. Second, immediately after the operation, excepting a severe hemorrhage, we find a decided increase in the erythrocytes, which later disappears. Deviation from this phenomena indicates an unfavorable prognosis.

The examinations of Bruzzoni and Quarelli lead to the following conclusions: In cases in which the blood examination reveals the presence of pus corpuscles or sudanophilic elements greater than 45 per cent, the operation usually shows the presence of pus, and whereas in cases of otitis media purulenta acuta with free drainage no pus corpuscles are found in the blood and in chronic cases in repeated examinations none were found, this hematologic peculiarity is always found in these cases with mastoid complication. In one case with 80 per cent sudanophilia with almost completely degenerated leucocytes a large extradural abscess, with beginning meningitis, was found. In four cases of meningitis pus corpuscles and 80 per cent sudanophilia was found. The percentage of the sudanophilia varies from 40 per cent in simple mastoiditis to 65 per cent to 80 per cent in neck, extradural abscesses and meningitis. Pus corpuscles are rare in simple, numerous in complicated mastoiditis.

The finding of sudanophilic leucocytes is a splendid criterion in the differential diagnosis between purulent and tubercular meningitis, according to Michele the leucocytes stain sparingly with sudan III in tuberculiar meningitis (10-15 per cent), in suppurative meningitis in large numbers (50-80 per cent).

THE sigmoid flexure is practically a pelvic organ in the majority of men (65 per cent) and in women (75 per cent). Hence more reasons than intrapelvic conditions should be offered for the performance of extrapelvic sigmoidopexy.—Byron Robinson.

AT Cairo, Ill., the board of education has been enforcing the vaccination regulations against all children who attend the schools. The board can not compel vaccination, but it can prevent the attendance of children who are not vaccinated.

OPEN AIR SCHOOL.—An open air public school for tuberculous children has been opened on the roof of the public library in Franklin Square, Boston, the experiment being conducted under the direction of the Boston Association for the relief of tuberculosis. The course of study mapped out for the children is the same as that for normal pupils in the same grades. The children are kept on the roof from nine until five daily, each child being provided with a heavy ulster and a cloth bag.

WYOMING STATE BOARD OF MEDICAL EXAMINERS.—Governor B. B. Brooks of Wyoming has appointed on the State Board of Medical Examiners for the ensuing two years: Dr. S. B. Miller of Laramie, as secretary; Dr. S. W. Johnson of Newcastle, as president, and Dr. A. B. Tonkin of Riverton, as treasurer. Dr. Miller succeeds himself. Drs. Oliver Chambers of Rock Springs and E. P. Rohrbaugh of Casper, former members of the board, resigned, and Drs. Johnson and Tonkin were appointed to their positions.

THE MEDICAL FORTNIGHTLY

A Cosmopolitan Biweekly for the General Practitioner

The Medical Fortnightly is devoted to the progress of the Practice and Science of Medicine and Surgery. Its aim is to present topics of interest and importance to physicians, and to this end, in addition to a well-selected corps of Department Editors, it has secured correspondents in the leading medical centers of Europe and America. Contributions of a scentific nature, and original in character, solicited. News of Societies, and of interesting medical topics, cordially invited.

Advertising forms close on the first and fifteenth of each month. Time should be allowed to submit proof for correction. Advertising rates on application.

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Contributors should understand that corrected typewritten copy is essential to clean proof and prompt publication, and is much more satisfactory than manuscript. Original articles should be as condensed as justice to the subject will allow.

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Contributions and books for review should be addressed to the Managing Editor, 319 and 320 Century Building, St. Louis, Mo.

MEDICAL MISCELLANY

THE INDEPENDENT PRESS.—From the days of pagan antiquity to the present hour, there has never been a time or country wherein mankind could claim immunity from all persecution for intellectual difference. But it is outrageous in this day and age of the world that honest, experienced physicians should be villified, remedies which have proved efficacious for years in the practice of thousands of our profession, accused of being fraudulent and valueless, and independent medical journal censured because they dare to question the authority and fallibility of the Journal of the American Medical Association and a few parrot-like state journals, who can drink only out of gourds inscribed with the J. A. M. A. trade-mark. Never before in the history of medicine has there been such a need of strong, able, fearless, independent men in Medical journalism as there is right now. Stub pencils and paste-pots and blind obedience to certain cliques will suffice no more. Editors with only these qualifications and who have reached the sanctum through the composing room instead of the library, or through the influence of medical politics, are totally unable to subserve the best interest of the physicians of America. It is especially desirable that a strong, but not offensive individuality should be cultivated in the editorial columns, that the emphasis given to private, yet enlightened, judgment may exert public influence. Upon an editor of a medical journal today it is of all things incumbent that a candid, fair and intelligent discussion of every topic of interest to the profession or to the health of the community should form the ruling motive of effort. Above all, let us support and encourage the independent medical journal. The official society organs are necessary and have their proper place. But under no circumstances should they be allowed to supplant independent journals.—George F. Butler, M. D., in Transactions Amer. Med. Ed. Assn.

PYOKTANIN BLUE. — Pyoktanin ("pus-killer") is the name given by Prof. J. Stillings, of the University of Strasburg, Germay, to a group of substances which he found most efficacious as bactericides. The name, however, has been restricted to the leading member of the group., which has thus become known as pyoktanin blue. It is also known as methyl, dahlia, or Paris violet, is an oxidation product of dimethyl aniline, and is derived from coal tar. Pyoktanin blue is a non-poisonous, violet, crystalline powder, nearly odorless, very soluble in chloroform, soluble in 12 parts of 90 per cent alcohol, 50 parts glycerine, 50 parts hot or 75 parts cold water, the solutions being very diffusible in animal fluids.

Pyoktain blue is antispetic, disinfectant, and analgesic. Unlike many of the substances used as germicides, it is non-poisonous, and can be applied undiluted to the tissues and fluids of the living body without injury to either. Furthermore, it does not form insoluble compounds with organic matter as so many of the bactericides do, and therefore does not form protective deposits around or over those strata of bacterial colonies which are somewhat removed from the surface. Add to these facts still another, viz., that it penetrates and kills the bacilli themselves, and as has been microscopically demonstrated, and its advantages over the antiseptics usually employed for germicidal purposes becomes at once apparent.

Pyoktanin blue is used in surgery, oph-

thalmiatric, and otiatric practice, in diseases of the throat and nose, in gonorrhea, leucorrhea, ulcers, burns, inflamed wounds, malignant and syphilitic neoplasms, etc.

It is highly extolled in veterinary practice as a remedy in foot and mouth disease of cattle, for which it seems to be specific.

Method of application: 1. Pure Pyoktanin Blue is to be powdered directly on the surface of large purulent wounds and ulcers, until a firm scab has formed, which must then be abandoned to spontaneous desquamation.

2. Pyoktanin Dusting Powders. Various diluents may be employed, such as talcum, starch, sugar, sugar of milk, etc., to form dusting powders for purposes indicated. A 2 per cent dusting powder is recommended for skin abrasions (chafes from riding, etc.), humid eczemas, and the like. The same strength, with proper diluent, is indicated for certain cases of ophthalmology, as, for instance, intensely purulent conjunctivitis. In the milder forms of conjunctivitis, and in eye cases generally, also in light inflammations of the pituitary membrane, dusting powders of the strength of 10 per cent should be used.

3. Pyoktanin oinments, of the strength of from 2 to 10 per cent may be employed. One of the best bases for such ointments is wool-fat, which may be obtained on the market under the title adeps lanae, although other bases, such as lard, vaselin, etc., may be used. To obtain the best quality of wool-fat physicians should specify adeps lanae Merck.

Pyoktanin ointment, 2 per cent is eligible in chronic marginal blepharitis, in eczemas, and in all cases where two per cent dusting powder is indicated.

4. Pyotanin Pencils are furnished in two sizes, known, respectively, as large and small. The large size is used for minor surgery, as occurring in daily practice: for instance, for the sterilization of fresh wounds; in small purulent wounds and ulcers (which must, however, be not larger than a silver dollar); in small burns and scalds; in paronychias, etc.

The pencil is dipped into water, and then passed over the traumatic surfaces until a continuous coat of color is apparent over their entire extent; thereupon they are abandoned to spontaneous desquamation.

The small size is used principally for ophthalmological purposes; as, for instance, the sterilization of purulent corneal ulcers.

5. Pyoktanin solutions are indicated most especially for ophthalmological, in conjunctival and corneal affections. Their strength is usually placed at 1:1000 (1 part pyoktanin to 1000 parts of water); but, if needed, this may be increased to 1:100.

For surgical use the strength of the solution is to be adapted to the antiseptic requirements of each case. Generally strengths of from 1:10,000 to 1:1,000 are used. Solutions of the latter strength are largely employed for general hygienic disinfection (as, for instance, in spittoons for consumptives), in hospitals, asylums, and prison practice.

Caution: Keep solutions in dark colored bottles and use only when recent.

Pyoktanin blue is also employed for impregnating gauze to be used as a surgical dressing.

6. Pyoktanin blue, internally used, may be employed in gelatin capsules, a 2 per cent alcoholic solution being recommended for that purpose. In that form it is said to be beneficial in the treatment of pyloric carcinoma. The dose is 1 to 5 gr. The maximum dose is 10 grn. single; 20 grn. per day.

Pyoktanin stains are readily removable by lathering with common soap (rubbing in well), and then washing (or, if need be, brushing) off with alcohol, or with any strong alcoholic liquor; with a 10 per cent solution of hydrochloric acid.

Broken pyoktanin pencils are mended by simply wetting the severed surfaces with water, and pressing together gently; when dry, they will cohere.

THERE is a kind of nervous dysmenorrhea a which requires no local treatment. The general nervous system requires treatment. —Byron Robinson.

NEEDLES, CAL., is said to be the most healthful place in the world. It is true the Santa Fe railroad has a hospital there, but it is only for scalds and broken bones. Last summer the surgeon-in-chief, Dr. Freeman, wanted to give the assistant surgeon a three months' vacation, so he accepted the services of the local undertaker. The undertaker played fair, for during the whole three months he was acting as assistant surgeon there was not a single death in the town.—Southern California Practitioner.

REGISTERED PHARMACIST.—"Excuse me," said the old lady as she entered the drug-store, "but are you a registered pharmacist?"

"Certainly, ma'am," answered the clerk.

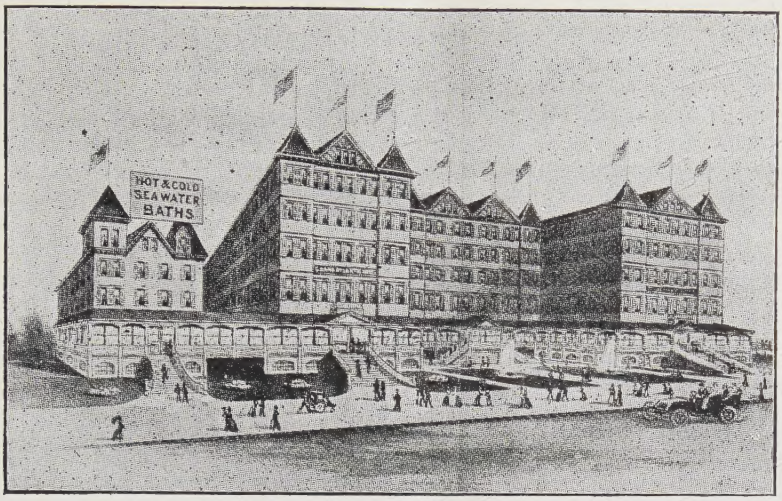
"You have a diploma, I suppose?"

"Yes, ma'am."

"How long have you been in the business?"

"About ten years." "Well, I guess you are all right. Give me a couple of postage stamps, please."—Med. Standard.

Headquarters, Missouri Valley and Southwest Medical Societies at the American Medical Association, June 8 to 11, 1909.



GRAND ATLANTIC HOTEL

Virginia Avenue and the Beach

Atlantic City, New Jersey

THE GRAND ATLANTIC has again been chosen headquarters of the Medical Society of the Missouri Valley and Medical Association of the Southwest. Ample accommodations will be provided for the entire party. This excellent house, which is strictly first-class, was chosen on account of its proximity to the "Boardwalk," **Steel Pier**, Postoffice, Exhibit, Registration Bureau and other meeting places of the Association.

Liberally managed and conducted. Admirable cuisine and every modern improvement and convenience for the comfort and pleasure of guests.

The hotel is entirely detached from all other buildings; facing the south; is light and cheerful and has open surroundings. The rooms are large and airy, containing from two to six windows. All have outside exposure.

Hot and cold sea water in all baths, also public hot and cold sea water baths.

Rates, $2.50 per day, American plan, with bath, $3.50 and up. Special weekly rates.

Orchestra, elevators, steam heat, 10,000 square feet of Sun Parlors, with southern exposure, enclosed in glass.

Garage connected with the hotel. Coaches meet all trains.

Would be pleased to have you with us. Write for booklet and terms.

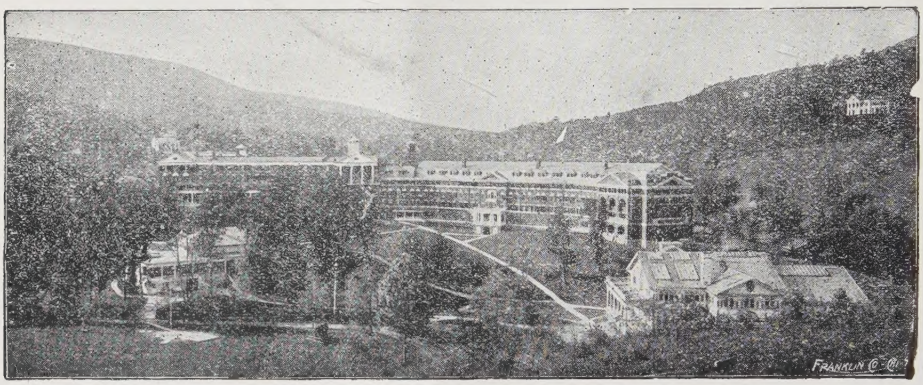
CHARLES E. COPE, Proprietor.

The "Missouri Valley and Southwest" Special leaves St. Louis, Saturday, June 5, at noon. Full particulars in another part of this journal.

AMERICAN MEDICAL ASSOCIATION AT ATLANTIC CITY.

Delegates to the American Medical Association this year will have the pleasure of a trip on special train over the picturesque "Big Four and C. & O." route through the resort region of the Virginias, and an opportunity of visiting Hot Springs, the most aristocratic of the old Southern resorts.

The "Missouri Valley and Southwest Special" will be composed of the finest Pullman palace sleeping and dining cars, observation and library car, and will run solid through to Atlantic City without change. The train will leave St. Louis on Saturday, June 5th, at noon, over the Big Four-C. & O. railways via Indianapolis, Cincinnati and Washington.



"The Homestead," Virginia Hot Springs, where the A. M. A. party will spend Sunday en route to Atlantic City.

Sunday at Hot Springs.—We will spend Sunday at Hot Springs, Va., a beautiful resort in the Allegheny Mountains where our entire party will be the guests at luncheon of Mr. Fred Sterry, manager of the famous "Homestead" hotel. The day will be spent in sight-seeing. Leave Hot Springs 5 p.m., arriving at Atlantic City on Monday morning June 7th, in ample time to register and attend the House of Delegates and auxiliary meetings before the opening of the American Medical Association on Tuesday.

Rates.—The Central Passenger Association has announced a round-trip rate of one and one-half fare from St. Louis, $33.40, and a similar rate is expected from other passenger associations. The lowest rates will be announced in this journal for May.

A special car will leave Omaha on the evening of June 4th, at 6:30 o'clock, via the "Wabash." From Kansas City and St. Joseph the service will be via the "Missouri Pacific," leaving St. Joseph at 7:40 o'clock p.m. and Kansas City at 11:00 o'clock, p.m., same evening, arriving at St. Louis early next morning, allowing about four hours in the city.

Headquarters: Hotel Accommodations.—The Grand Atlantic Hotel has again been chosen headquarters of the Medical Society of the Missouri Valley and Medical Association of the Southwest, Mr. Cope having "made good" in 1907. This excellent house was chosen on account of its proximity to the "Boardwalk,' Steel Pier, Postoffice, Exhibit, Registration Bureau and other meeting places of the Association. Rates, $2.50, and up, per day, American plan.

State, County and District societies are cordially invited to join our party. Let us make the attendance at the A.M.A. from the West this year a record-breaker. For itinerary and reservations, address

DR. CHAS. WOOD FASSETT, Secretary, St. Joseph, Mo.